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each of 16 pixels, that is, the line pixel corresponding to each coset of modulo 16, are connected to an independent shift/transfer pulse application common lead line. The number of the pixels in each of the successively arranged pixel groups is usually set to 8, 16, etc., but theoretically it may be a natural number between 4 and one half the number of pixels in each column.

In accordance with 37 C.F.R. § 1.121(b)(2)(iii) a separate sheet(s) with the replacement paragraphs, marked up to show all changes relative to the previous version of the paragraphs, is filed herewith.

IN THE CLAIMS:

Please amend the claims as follows:

Replace claim 1 with the following:

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1. (Amended) A solid-state imaging device comprising:
2 a pixel unit constituted by a two-dimensional array
3 of pixels for generating charge in correspondence to
4 received light and accumulating the charge for a
5 predetermined period of time;
6 a vertical transfer unit for vertically transferring
7 charge from the pixels in the pixel unit, a horizontal
8 transfer unit for horizontally transferring charge from
9 the vertical transfer unit;
10 shift gates each provided between each pixel and the
11 vertical transfer unit for reading out the charge in the

12 pixels to the vertical transfer unit, gate electrodes for
13 controlling the shift gates; and

14 a plurality of lead lines and a plurality of
15 connection terminals for connecting the gate electrodes
16 to an external circuit,

17 the gate electrodes within successive pixel rows
18 belonging to each coset of modulo N, N being a
19 predetermined natural number between 4 and one half the
20 number of pixels in a column, and a minimum number of N
21 corresponding to a periodic unit of gate electrode
22 connections to said connection terminals within said
23 successive pixel rows, the gate electrodes being combined
24 with N gate electrode groups to reduce the number of the
25 connection terminals.

[Replace claim 2 with the following:]

1 2. (Amended) A solid-state imaging device comprising:
2 a pixel unit constituted by a two-dimensional array
3 of pixels for generating charge in correspondence to
4 received light and accumulating the charge for a
5 predetermined period of time;

6 a vertical transfer unit for vertically transferring
7 charge from the pixels in the pixel unit, a horizontal
8 transfer unit for horizontally transferring charge from
9 the vertical transfer unit;

10 shift gates each provided between each pixel and the
11 vertical transfer unit for reading out the charge in the
12 pixels to the vertical transfer unit, gate electrodes for
13 controlling the shift gates; and

14 a plurality of lead lines and a plurality of
15 connection terminals for connecting the gate electrodes
16 to an external circuit,
17 gate control lines within successive pixel rows
18 belonging to each coset of modulo N, N being a
19 predetermined natural number between 4 and one half the
20 number of pixels in a column, and a minimum number of N
21 corresponding to a periodic unit of gate electrode
22 connections to said connection terminals within said
23 successive pixel rows, being combined with each other so
24 as to reduce the number of the connection terminals.

[Replace claim 3 with the following:]

1 3. (Amended) A solid-state imaging device comprising:
2 a pixel unit constituted by a two-dimensional array
3 of pixels for generating charge in correspondence to
4 received light and accumulating the charge for a
5 predetermined period of time;
6 a vertical transfer unit for vertically transferring
7 charge from the pixels in the pixel unit, a horizontal
8 transfer unit for horizontally transferring charge from
9 the vertical transfer unit;
10 shift gates each provided between each pixel and the
11 vertical transfer unit for reading out the charge in the
12 pixels to the vertical transfer unit, gate electrodes for
13 controlling the shift gates; and
14 a plurality of lead lines and a plurality of
15 connection terminals for connecting the gate electrodes
16 to an external circuit,

17 the gate electrodes being provided in a
18 predetermined number N, N being a predetermined natural
19 number between 4 and one half the number of pixels in a
20 column, of gate electrode groups such that horizontal
21 line number of the gate electrode groups which are
22 connected to respective common lead lines belong to each
23 same residue class of modulo N, some of the gate
24 electrode groups being commonly connected so that the
25 connection terminals are less in number than N.

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[Replace claim 4 with the following:]

1 4. (Amended) A solid-state imaging device comprising: a
2 pixel unit constituted by a two-dimensional array of
3 pixels for generating charge in correspondence to
4 received light and accumulating the charge for a
5 predetermined period of time; a vertical transfer unit
6 for vertically transferring charge from the pixels in the
7 pixel unit, a horizontal transfer unit for horizontally
8 transferring charge from the vertical transfer unit;
9 shift gates each provided between each pixel and the
10 vertical transfer unit for reading out the charge in the
11 pixels to the vertical transfer unit, gate electrodes for
12 controlling the shift gates; and a plurality of lead
13 lines and a plurality of connection terminals for
14 connecting the gate electrodes to an external circuit,
15 the gate electrodes within successive pixel rows
16 belonging to each coset of modulo N, N being a
17 predetermined natural number between 4 and one half the
18 number of pixels in a column, and a minimum number of N

19 corresponding to a periodic unit of gate electrode
20 connections to said connection terminals within said
21 successive pixel rows, the gate electrodes being combined
22 with N gate electrode groups to reduce the number of the
23 connection terminals,

24 wherein the commonly connected gate electrode groups
25 are always controlled in the same way in each of all
26 predetermined read-out modes including selective pixel
read-out modes by selective shift gate driving.

[Replace claim 5 with the following:]

1 5. (Amended) A solid-state imaging device comprising: a
2 pixel unit constituted by a two-dimensional array of
3 pixels for generating charge in correspondence to
4 received light and accumulating the charge for a
5 predetermined period of time; a vertical transfer unit
6 for vertically transferring charge from the pixels in the
7 pixel unit, a horizontal transfer unit for horizontally
8 transferring charge from the vertical transfer unit;
9 shift gates each provided between each pixel and the
10 vertical transfer unit for reading out the charge in the
11 pixels to the vertical transfer unit, gate electrodes for
12 controlling the shift gates; and a plurality of lead
13 lines and a plurality of connection terminals for
14 connecting the gate electrodes to an external circuit,
15 gate control lines within successive pixel rows belonging
16 to each coset of modulo N, N being a predetermined
17 natural number between 4 and one half the number of
18 pixels in a column, and a minimum number of N

19 corresponding to a periodic unit of gate electrode
20 connections to said connection terminals within said
21 successive pixel rows, being combined with each other so
22 as to reduce the number of the onnection terminals,
23 wherein the commonly connected gate electrode groups
24 are always controlled in the same way in each of all
25 predetermined read-out modes including selective pixel
26 read-out modes by selective shift gate driving.

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[Replace claim 6 with the following:]

1 6. (Amended) A solid-state imaging device comprising: a
2 pixel unit constituted by a two-dimensional array of
3 pixels for generating charge in correspondence to
4 received light and accumulating the charge for a
5 predetermined period of time; a vertical transfer unit
6 for vertically transferring charge from the pixels in the
7 pixel unit, a horizontal transfer unit for horizontally
8 transferring charge from the vertical transfer unit;
9 shift gates each provided between each pixel and the
10 vertical transfer unit for reading out the charge in the
11 pixels to the vertical transfer unit, gate electrodes for
12 controlling the shift gates; and a plurality of lead
13 lines and a plurality of connection terminals for
14 connecting the gate electrodes to an external circuit,
15 the gate electrodes being provided in a predetermined
16 number N, N being a predetermined natural number between
17 4 and one half the number of pixels in a column, of gate
18 electrode groups such that horizontal line number of the
19 gate electrode groups which are connected to respective

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20 common lead lines belong to each same residue class of
21 modulo N, some of the gate electrode groups being
22 commonly connected so that the connection terminals are
23 less in number than N,
24 wherein the commonly connected gate electrode groups
25 are always controlled in the same way in each of all
26 predetermined read-out modes including selective pixel
27 read-out modes by selective shift gate driving.

Please add the following new claim:

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1 10. (New) A solid-state imaging device comprising:
2 a pixel unit constituted by a two-dimensional array of
3 pixels for generating charge in correspondence to received
4 light and accumulating the charge for a predetermined
5 period of time;
6 a vertical transfer unit for vertically transferring
7 charge from the pixels in the pixel unit, a horizontal
8 transfer unit for horizontally transferring charge from the
9 vertical transfer unit;
10 shift gates each provided between each pixel and the
11 vertical transfer unit for reading out the charge in the
12 pixels to the vertical transfer unit, gate electrodes for
13 controlling the shift gates; and
14 a plurality of lead lines and a plurality of
15 connection terminals for connecting the gate electrodes to
16 an external circuit,
17 the gate electrodes within successive pixel rows
18 belonging to each coset of modulo N, N being a
19 predetermined natural number between a minimum number